

Remarks

Reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks. Claim 22 remains canceled and claims 25, 27, and 28 are canceled herein without disclaimer or prejudice to renewal. Claims 1-2, 8, 11-14, 16-19, 24, 26, and 30 are amended herein. New claims 31-35 are presented for consideration. Claims 1-21, 23-24, 26 and 29-35 are pending in this application.

By this Amendment, Applicant has amended the independent claims to further clarify the claims in view of discussions of claim 1 during the Examiner Interview conducted on June 24, 2008. Applicant notes that the amendments offer clarification of features previously presented in the claims and therefore are not necessarily narrowing.

Statement of the Substance of an Examiner Interview

Applicant thanks the Examiner and Supervisory Examiner Jeff West for extending the courtesy of a telephonic interview on June 24, 2008. Features of claim 1 and the filter window described in U.S. Patent No. 6,503,720 to Wittwer et al. (Wittwer) at col. 5, line 60, to col. 6, line 10, were discussed. Specifically, Applicant's representative argued that Wittwer does not teach that endpoints of a usable portion of a curve are determined via a second derivative. Although no agreement was reached, the discussion was helpful in understanding the Examiner's position.

Claim Amendments

The amendments herein find support in the original Application. For example, the "finding" and "designating" language of claim 1 finds exemplary support at page 4, lines 1 *et seq.* The "responsive to" language finds exemplary support at page 13, lines 15 *et seq.* and in original claims 18 and 26.

Exemplary support for the "discarding" language of claim 8 is found in the Application at page 7, lines 21 *et seq.*

Rejections under 35 U.S.C. § 103(a) in view of Wittwer

Claims 1-6, 8-11, 13-22, and 24-30 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable in view of Wittwer. Applicant respectfully traverses this rejection.

Independent Claim 1 and Dependent Claims 2-6 and 31-34

Amended claim 1 is directed to one or more computer-readable media comprising computer-executable instructions for performing a method to calculate concentration of a substance in a test sample, and recites in part:

after a second derivative is calculated for a standard sigmoid curve, finding a first point on the standard sigmoid curve via the second derivative of the standard sigmoid curve and designating the first point as a first bound;

finding a second point on the standard sigmoid curve via the second derivative of the standard sigmoid curve and designating the second point as a second bound;

determining a usable portion of the standard sigmoid curve as a plurality of points on the standard sigmoid curve between the first bound and the second bound;

Claim 1 stands rejected over Wittwer. However, Wittwer does not teach or suggest each and every element of the claim. The arrangement of Wittwer is fundamentally different from claim 1. In the interest of brevity, Applicant argues two clear differences herein.

Wittwer's description of a sliding filter window does not teach or suggest "finding a first point on the standard sigmoid curve via the second derivative." The Office action compares the usable portion recited in claim 1 to the sliding window used to apply the Savitzky Golay filter in Wittwer, which is described at col. 5, line 60, to col. 6, line 10 of Wittwer. However, Wittwer describes that the endpoints of the filter window are predetermined or user-selected values (e.g., 3 and 4, or 6 and 4) for parameters a and b. Even if the endpoints of the sliding window corresponded to the first and second points recited in claim 1 (which they do not), Wittwer does not teach selecting the sliding window endpoints via a second derivative. Therefore, Wittwer does not teach or suggest "finding a first point on the standard sigmoid

curve via the second derivative.”

Wittwer’s description of a sliding filter window does not teach or suggest “finding a first point . . . via the second derivative” “after a second derivative is calculated for a standard sigmoid curve.” As recited, the second derivative calculation takes place before the first point is found. By contrast, Wittwer describes computing the derivative after the filter has been used to smoothen the data (see, for example, Wittwer at col. 5, lines 65-66: “From the smoothened kinetic values, the maximum, minimum or zero value of the first, second or nth derivative is calculated.”). Accordingly, Wittwer cannot teach or suggest “after a second derivative is calculated . . . , finding a first point . . . via the second derivative.”

During the interview, Examiner West noted that FIG. 4 of Wittwer may include points associated with a second derivative. As understood by Applicant, FIG. 4 illustrates fitting five points (darkened circles) of a second derivative curve to a quadratic function to determine a maximum value. However, as understood by Applicant, the five points are on the second derivative curve. Therefore, FIG. 4 of Wittwer does not describe “finding a first point on the standard sigmoid curve via the second derivative.”

For at least these reasons, claim 1 and its dependent claims 2-6 and 31- 34 are allowable over Wittwer.

Amended independent claim 8 and dependent claims 9-10 and 35

Amended claim 8 recites “finding a first endpoint of the usable portion via a second derivative of the standard curve” as well as “discarding one or more of the observations that are outside the usable portion of the standard curve” and is therefore allowable over Wittwer, along with dependent claims 9, 10, and 35.

Amended independent claim 11

Amended claim 11 recites “finding a usable portion of a sigmoid curve, wherein the finding comprises calculating a second derivative of the sigmoid curve and finding a first point

and a second point on the sigmoid curve using the second derivative” and “calculating a concentration of the substance . . . via the usable portion of the sigmoid curve” and is therefore allowable over Wittwer.

Amended independent claim 13 and dependent claims 14-17

Amended claim 13 recites “determining a usable portion . . . by calculating second derivative values for the sigmoid curve and selecting a first point and a second point on the sigmoid curve” and “based on the usable portion of the sigmoid curve, selecting . . . a subset of observations” and is therefore allowable over Wittwer along with dependent claims 14-17.

Amended independent claim 18 and dependent claims 20-21 and 23-25

Amended claim 18 recites “determining a usable portion of a standard sigmoid curve . . . wherein the determining comprises . . . : calculating second derivative values . . . ; selecting a first point and a second point . . . using the second derivative values; and . . . determining the usable portion of the standard sigmoid curve as a plurality of points . . . between the first point and the second point” and “when the measurement falls within the usable point, calculating a concentration via the measurement and the usable portion” and is therefore allowable along with its dependent claims 20-21 and 23-24.

Amended independent claim 19

Amended claim 19 mimics the language of claim 18 and is allowable for at least the same reasons.

Amended independent claim 26 and dependent claims 28-29

Amended claim 26 recites “means for designating a usable portion of the characteristic sigmoid curve by calculating a second derivative for the characteristic sigmoid curve and selecting a first point and a second point . . . using the second derivative” and “means for calculating a concentration for the observation responsive to determining that the observation

is within the usable portion . . .” and is therefore allowable over Wittwer along with dependent claim 29.

Amended independent claim 30

Amended claim 30 recites “calculating a second derivative of the standard sigmoid curve; selecting a first point and a second point on the standard sigmoid curve using the second derivative; defining a plurality of points on the standard sigmoid curve between the first point and the second point as a usable portion of the standard sigmoid curve” and “calculating a concentration of the substance . . . when the at least one observation falls within the usable portion” and is therefore allowable over Wittwer.

Rejections under 35 U.S.C. § 103(a) over Wittwer in view of Kaastrup

The Action rejects claims 7, 12 and 23 under 35 U.S.C. § 103(a) over Wittwer in view of U.S. Pat. Publication No. 2002/0160012 to Kaastrup (Kaastrup). Applicant respectfully traverses this rejection.

Claim 7 depends from claim 1 and Applicant has already stated reasons for the allowance of claim 1 over Wittwer. Kaastrup is directed to a vaccine chip technology that exploits the immunostimulating effects of a fragment of TGF^β for immunization and other medical treatments. Kaastrup is silent concerning “after a second derivative is calculated for a standard sigmoid curve” and “finding a first point on the standard sigmoid curve via the second derivative” as recited in claim 1. Therefore, Kaastrup does not cure the deficiencies of Wittwer.

For at least these reasons, claim 7 is allowable over Wittwer alone or in view of Kaastrup.

Amended claim 12 is directed to one or more computer-readable media comprising computer-executable instructions for performing a method comprising:

for a plurality of dilutions of a test sample, receiving respective measurements of optical density indicating concentration of live cells within the dilutions;

designating a first point and a second point on a sigmoid curve using a second derivative of the sigmoid curve;

defining a plurality of points on the sigmoid curve between the first point and the second point as a usable portion of the sigmoid curve;

discarding one or more of the measurements that are outside the usable portion of the sigmoid curve;

via the measurements, calculating a concentration of anti-PA IgG for the test sample via the usable portion of a sigmoid curve representing concentrations of live cells within dilutions of a reference sample having a known quantity of anti-PA IgG, wherein the sigmoid curve is represented via a four-parameter logistic technique; and

indicating the concentration of anti-PA IgG for the test sample.

Claim 12 stands rejected over Wittwer in view of Kaastrup. However, neither Wittwer alone nor Wittwer in combination with Kaastrup teaches or suggests each and every element of the claim.

Wittwer fails to teach or suggest “discarding one or more of the measurements that are outside of the usable portion of the sigmoid curve.”

Kaastrup is directed to a vaccine chip technology that exploits the immunostimulating effects of a fragment of TGF^β for immunization and other medical treatments. Kaastrup does not cure the deficiencies of Wittwer.

For at least these reasons, claim 12 is allowable over Wittwer alone or in view of Kaastrup.

Claim 23 depends from claim 18 and Applicant has already stated reasons for the allowance of claim 18 over Wittwer. Kaastrup is directed to a vaccine chip technology that exploits the immunostimulating effects of a fragment of TGF^β for immunization and other medical treatments. Kaastrup does not cure the deficiencies of Wittwer.

For at least these reasons, claim 23 is allowable over Wittwer alone or in view of Kaastrup.

Request for Interview

If any issues remain, the Examiner is formally requested to contact the undersigned prior to issuance of the next Office Action in order to arrange a telephonic interview.

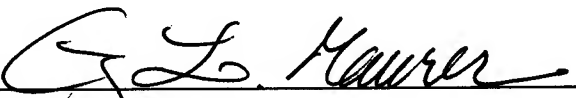
Conclusion

The claims in their present form should now be allowed, and such action is respectfully requested.

Respectfully submitted,

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